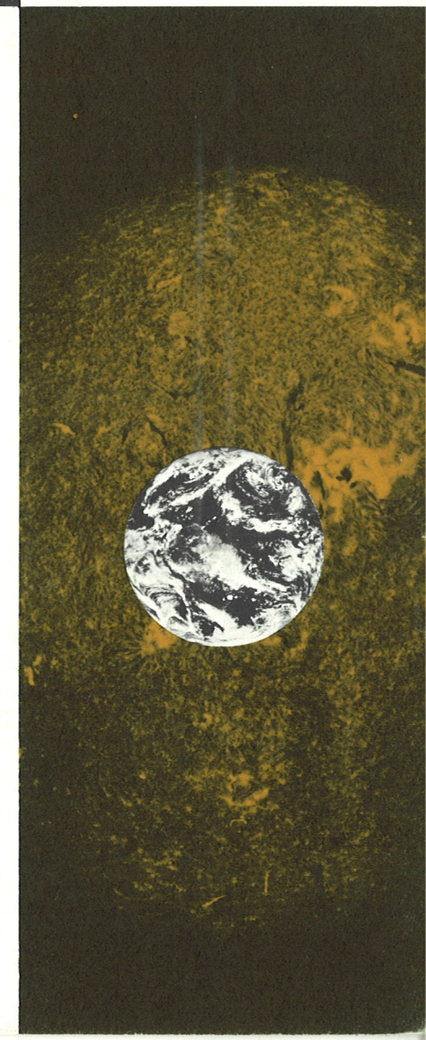
A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

# NGSDC

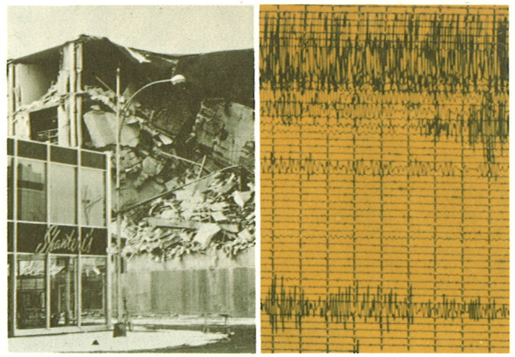
## The National Geophysical & Solar-Terrestrial Data Center

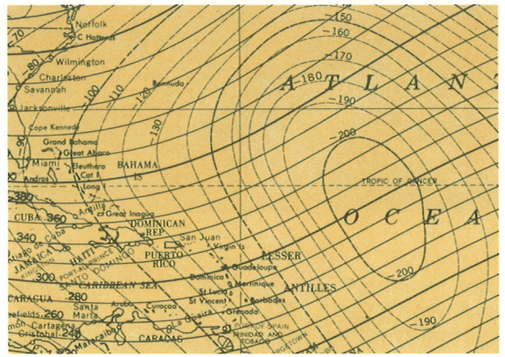


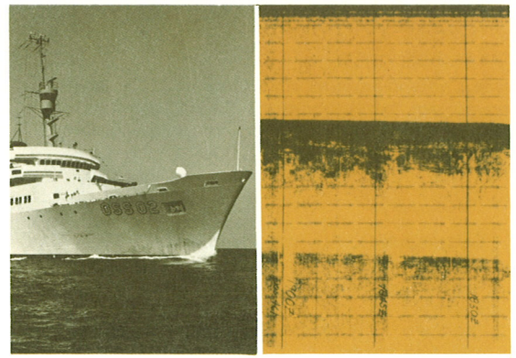

U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Environmental Data Service





Environmental data provide a view of the physical world as it was—a history of certain aspects of the earth, sun, sea, and atmosphere as observed at a given place and time. It is a complex world, its aspects changing from moment to moment, epoch to epoch, and the scientific observation of its character produces mountains of data. NOAA, the U.S. Commerce Department's National Oceanic and Atmospheric Administration, and its Environmental Data Service have the task of bringing order and imagination to the work of managing, moving, and using this great mass of information.

Where this work is concerned with the largely invisible, seemingly remote world of the planet's internal forces and external physical fields, its interactions with processes in the sun and interplanetary space, and the ancient scourge of earthquakes, the data history is shaped and written by the National Geophysical and Solar-Terrestrial Data Center (NGSDC) in Boulder, Colorado, one of the five major facilities* of NOAA's Environmental Data Service.

* Others are the National Climatic Center, Asheville, N.C.; the National Oceanographic Data Center, Washington, D.C.; the Environmental Science Information Center, Washington, D.C.; and the Center for Experiment Design and Data Analysis, Washington, D.C.

NGSDC combines NOAA's data activities in the fields of seismology, geomagnetism, marine geology and geophysics, solar activity, interplanetary phenomena, the ionosphere, cosmic rays, aurorae, and airglow in a single data center. Its activities are conducted through the Solid Earth Data Services Division, Solar-Terrestrial Data Services Division, Data Studies Division, and Data Operations Group.

The NGSDC facility in Boulder was created from the former Aeronomy and Space Data Center, which had been in Boulder since 1957, and the National Geophysical Data Center, which began moving west from the Washington, D.C., area in 1971. All elements are now located in Boulder except for the marine geology and geophysics group in Washington, D.C., and a data-copying facility in Asheville, N.C.

Some 300,000 seismograms per year from about 150 earthquake-monitoring stations around the globe are processed and archived by the Solid Earth Sciences Division, adding to a file that numbered more than two million seismograms in 1972. Accelerograms, digitized strong-motion data, and a historical file of earthquake epicenter data are also part of the Center's seismic holdings.

Geomagnetic data, which show changes in direction and strength of the earth's magnetic field, are received from United States and foreign sources, and consist primarily of worldwide geomagnetic survey measurements, observatory magnetograms, digital values at various sampling rates and indices of magnetic activity. Holdings include some one million magnetograms, which accumulate at a rate of about 50,000 per year, most of them on 35-millimeter microfilm; in addition, hundred of magnetic tapes contain digital data derived from magnetograms and survey measurements. The division also compiles United States and World Magnetic Charts, the latter in collaboration with the U.S. Naval Oceanographic Office.

In the area of marine geology and geophysics, NGSDC handles gravimetric, magnetic, bathymetric, and seismic observations and bottom samples collected at sea by Federal agencies and many universities and research centers, as well as some foreign sources. In addition, NOAA's Environmental Data Service is managing and disseminating marine geophysical data obtained from explorations under the International Decade of Ocean Exploration (IDOE).

Most of the data managed by the Center's Solar-Terrestrial Data Service Division comes from world sources under international exchange agreements. The rapidly expanding file contains more than 11 million feet of ionogram film, 800,000 feet of all-sky camera film, 2.5 million sheets of graphical and numerical data, and additional information on magnetic tape from NOAA and NOAA-supported stations as well as several hundred cooperating institutions.

Ionsophere data received from worldwide sources include vertical soundings, topside soundings, electron density profiles, systematic observations of ionospheric absorption and drifts, atmospheric radio noise measurements, whistlers, very low frequency, noise observations, and other categories. Solar activity data include those on solar flares, radio emission events, sudden ionospheric disturbances, and some satellite monitoring measurements of ultraviolet, x-ray, and particle emissions, and the solar wind. Also included are global solar patrol data on calcium plages, solar magnetic fields, and chromospheric structure, various daily maps of the sun, and solar indices. Auroral data consist mainly of all-sky photographs. Cosmic ray observations, primarily neutron monitor data, are made by the world network of ground-based stations.

NGSDC is also responsible for operating World Data Center A for Solar-Terrestrial Physics and for Solid Earth Sciences, under the auspices of the National Academy of Sciences and according to the international guides for data exchange of the International Council of Scientific Unions and its appropriate specialized elements. World Data Center B is in the U.S.S.R., and World Data Center C facilities for various disciplines are located in selected countries of western Europe and in Japan. The World Data Center mechanism and assorted agreements enable the NGSDC to make available large amounts of worldwide data collected by foreign organizations as well as under NOAA sponsorship.

# NGSDC PRODUCTS AND SERVICES

Copies of primary data and of data products are available to users on an exchange basis or at the cost of copying. Contributors of data to NGSDC and its associated World Data Centers are entitled to an equivalent amount without charge. The costs of copying are listed in various NGSDC catalogs or will be provided on request. For large orders, charges will be actual cost.

## MARINE GEOLOGY AND GEOPHYSICS

**Bathymetric measurements,** microfilmed original records, processed data tapes, printouts, punched cards.

**Seismic reflection profiles,** original records in microfilm.

**Gravimetric measurements,** microfilmed original records, processed tapes, printouts, punched cards.

**Geomagnetic total field measurements,** microfilmed original records, processed tapes, printouts, punched cards.

**Geological data,** including heat flow data, cores, samples and sediment data.

PUBLICATIONS: **Data Reports** (issued at irregular intervals).

## SOLAR-TERRESTRIAL PHYSICS

**Ionosphere data,** including ionograms, frequency plots, riometer and field-strength strip charts, and tabulations on tape, and punched cards.

**Solar activity data,** microfilm copies of original records, tape, and punched cards; selected solar flare patrol film, solar maps from computer outputs or drawings.

**Auroral data,** 16- or 35-mm all-sky camera film in 100-foot rolls, radar observations on 16-mm film.

**Cosmic ray data,** microfilmed tables of hourly intensities, tape, punched cards.

**Airglow data,** original data tables (many microfilmed), punched cards, computer printouts.

PUBLICATIONS: **Ionospheric Data** (monthly issue, presents monthly median ionospheric characteristics for ionospheric physics community and users of HF radio propagation; GPO catalogue number C55.218:).**

**Solar-Geophysical Data** (monthly issue, **Part I, Prompt Reports,** and **Part II, Comprehensive Reports,** describes solar activity and associated ionospheric, radio propagation, and other geophysical effects; GPO catalogue number C55.215:)**

**UAG Reports** (issued at irregular intervals by World World Data Center A for Solar-Terrestrial Physics, reports on solar-terrestrial environment and interplanetary space; GPO catalog number C55.220:)**

* Available from the Environmental Science Information Center, NOAA Environmental Data Service, Washington, D.C. 20235.

** Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

## SEISMOLOGY

**Seismograms,** 70-mm and 35-mm film, original size on paper.

**Accelerograms,** original size reproductions and microfilm.

**Digitized strong-motion accelerograms,** on punched cards.

**Earthquake data list** (events since January 1961), sorted chronologically and geographically, on magnetic tape, punched cards, microfilm, and microfiche.

**Earthquake data service,** punched-card updates of data list on a monthly basis.

PUBLICATIONS: **United States Earthquakes** (an annual summary of earthquakes in the U.S. and nearby territories, and associated phenomena; series began in 1928).*

**Publication 41-1, Earthquake History of the United States, Part I, Stronger Earthquakes of the United States; Part II, Stronger Earthquakes of California and Western Nevada.***

**Special Publication 282, Earthquake Investigation in the United States** (GPO catalogue number C4.19:282).**

**Abstracts of Earthquake Reports for the United States** (before January 1967 this report summarized earthquake data for only the western United States).*

**Seismological Publications and Services** (free on request from NGSDC).

## GEOMAGNETISM

**Magnetograms,** full-size copies on paper and 35-mm microfilm.

**Digital values** (hourly, 2.5-minute, or other, derived from magnetograms, issued as tables on paper, microfilm, tapes, and punched cards).

**Magnetic survey data** (tables of selected observed values or long-term changes in magnetic declination or other components, tape copies of file, information on magnetic anomalies).

PUBLICATIONS: U.S. Magnetic Charts (isogonic charts of U.S., show lines of equal magnetic declination and rates of annual change; published every 5 years, with magnetic charts for magnetic dip, horizontal intensity, vertical intensity, and total intensity published every 10 years).

**U.S. Magnetic Tables** (published every 10 years, show magnetic values for each station occupied in the U.S. during the preceding 10-year period.)**

**Magnetic Activity Indices** (various types of relative measures of magnetic activity, derived from magnetograms).

**Secular-change Tables** (showing long-term changes in declination and other components).

**WORKING VISITS** by United States and foreign scientists to the Boulder data center and World Data Center A are encouraged. Normal working space will be provided and ionogram scaling tables, film viewers, and other facilities are available. Advance notice is requested for scheduling reasons. The staff of NGSDC is available for consultation and discussion, and there are research activities in all disciplines in NOAA's Boulder-headquartered Environmental Research Laboratories, the University of Colorado, National Center for Atmospheric Research, and the Institute for Telecommunication Sciences (of the Commerce Department's Office of Telecommunications). Visitors are similarly welcome at the Washington offices of NGSDC's marine geology and geophysics group.

The headquarters and most of the NGSDC activities are at 30th and Marine Streets, Boulder, in buildings shared with NOAA's Environmental Research Laboratories. The marine geology and geophysics group is located at 2001 Wisconsin Avenue, N.W., Washington, D.C., next to the National Oceanographic Data Center and the headquarters of the Environmental Data Service. Mailing addresses and telephones are:

**Environmental Data Service, D6** NOAA
Boulder, Colo. 80302, U.S.A.
**Environmental Data Service, DF62** NOAA
Washington, D.C. 20007, U.S.A.

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